



Supplementing sheep– get the match right.”

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If there's a very best time to feed a supplement, it's likely to be when pasture dries off. That's because:

- It is often easier to balance dry pasture with supplement than to balance green feed with a supplement.
- Dry pasture is likely to be cheaper than green feed, so a supplement will be more cost effective with dry pasture, especially when it stimulates sheep to eat more of that dry pasture than without the supplement. Supplements will increase the appetite of sheep for dry pasture if used correctly.
- If you don't use that dry pasture before it gets rained on it will start to rot. Its nutritional value will start to drop off quickly as the fungi and moulds start to eat up all the goodness that should be going to your sheep. Use it or lose it.
- Sheep are more likely to learn faster to eat a supplement in dry times than in green. Training sheep to take a supplement is essential to the success of a program.

So if you're thinking of refocusing your supplementation strategy here are a few pointers to start you thinking:

- **Be sure that we're talking about the same thing when we say "dry pasture or feed"**. Don't confuse it with the technical term "Dry matter". When nutritionists talk about dry matter, it means the weight of feed left after all water has been removed by drying it in an oven. So "Dry matter" applies to all types of feed, good or bad quality, young or old, dead or alive, pasture, grain or otherwise. "Dry pasture or feed" on the other hand is the common term for pasture that has died off either because the soil has become too dry for the plant. The pasture may dry off because it is the end of the season, or the plant has reached full maturity, seeded and died, or because it's been sprayed with herbicide or cut and turned into hay. While some plants (for example, annual species) die completely the roots of others (for example, perennials) stay alive but go dormant, and so the leaves dry off.
- **When wool and lamb prices are up the cost: benefit of a supplement will be better**, so it's a good time to start thinking now.

- **Be organised in advance.** Have the supplement ready in-store on your farm. Buy it in advance when it's likely to be at a more reasonable price instead later when everyone is demanding it and the price goes up. Start feeding as soon as the pasture starts to hay off. Steady, rather than a sudden, change in nutrition is a fundamental rule of productive nutrition. For example, it reduces the risk of tender breaks in wool and can cause digestive upsets that slow down weight gain.
- **Train your sheep to take a supplement.** You need to take a long term view on feeding supplements. Sheep are much fussier eaters than cattle. Introduce common supplements to ewes with lambs at foot. Train the ewes and they'll train their lambs. It appears that when lambs see their dams eat a supplement it "imprints" on their memory and they'll be much more likely to eat that supplement readily after weaning and over their lifetime.
- **Give the supplement at times when the sheep need it most.** If you're going to supplement dry pasture at all, do it when there's most likely to be a valuable production response. Key times for supplementing ewes are time of joining, time of lambing and into lactation. Note though that if lactation time is expected to happen when pastures are dry it's probably worth considering changing your time of lambing. Ideally, ewes should lamb onto green feed. It's important always to try and supplement weaners. Rams will also need extra good nutrition for at least 2 months prior to the start of joining. If you have sheep in these categories and the pasture is dry then try to use a supplement. In many sheep systems, time of joining is often the most likely time for an important production time to coincide with a dry pasture time of the year. So joining time is often a focus time for dry pasture supplementation.
- **Take care with supplements at lambing time.** Definitely, the ewe and her lambs need more nourishment at this time. But, be aware that running a supplement out when there are many new lambs on the ground that are less 4 hours old can increase the number of mismothered lambs. The ewes may be enticed to move off the birth site and chase that newly arrived supplement. Instead, think of a strategy to have that supplement out here just before they give birth. This is a great way to stimulate the ewe to produce more colostrum at birth for the lamb and this will improve lamb survival. A longer lasting supplement such as a molasses-based liquid mix or grain/molasses based lick block put out a few weeks in advance could mean fewer lost lambs.

Finally and most importantly,

- **Match your supplement to the nutrients that are missing in the dry pasture.** You need to match the supplement to your unique situation. It's too expensive to feed nutrients that are already there and in balance. Sometimes dry pasture can be an excellent source of nutrition. But often, dry pasture is less than adequate. It depends on the background – type of pasture, stage of maturity that it dried off at, region that it grew in, fertility of the soil that it grew in, whether it has been rained on or not, and so on.

Try to get advice from a reputable nutritionist who is familiar with your region and your system. Ideally they will base their decision on a nutrient test of a typical dry pasture on your farm. In the case of some very valuable minerals such as the trace elements Copper (Cu) and Cobalt (Co) the test may even extend to a blood test, and even better, a liver tissue test.

A nutritionist could look through a nutrient test of a typical dry pasture on your farm as follows.

1. **Check crude protein level** – if too low consider using a protein-meal based supplement such as lupins, canola meal, or cottonseed meal. For example a weaner needs at least 12 to 13% crude protein in the dietary dry matter (Table 1).
2. **Check energy** - Don't worry too much about improving the energy concentration if there is more than enough dry pasture and it is of reasonable digestibility – there's more to gain by making the most of dry pasture by getting protein and minerals right. It is when the dry pasture is starting to run out that you move your stock onto higher energy supplements like grains/molasses which replace rather than complement pasture and is therefore likely to be a more expensive option.
3. **Check the levels the minerals that are at greatest concentrations in the body.** These are the mineral very important for bone: Calcium: (Ca), Phosphorus (P), and Magnesium (Mg), and the electrolytes: Sodium (Na), Potassium (K), Chloride (Cl) and Sulphur (S). Refer to Table 1 for suggested minimal levels in dry pasture, using a weaner sheep and ewes at joining as an example.
4. **Check the levels the minerals that are still extremely important but that are at much lower levels in the body.** These include Copper (Cu), Cobalt (Co), Iodine (I), Manganese (Mn), Selenium (Se) and Zinc (Zn) (Table 1). Even better, at least for copper and cobalt (actually we test for Vitamin B12 which indicates cobalt levels), it is best to have the animal's liver tissue tested.
5. **Vitamins.** Don't worry too much about adding vitamins to complement dry pastures. Vitamins are most likely to be of concern if we want the sheep to grow very quickly whilst being completely off green feed for many months at a time. Such is the case for example in feed-lot situations. With dry pasture situations we're often more looking at just getting the animals through to the next green period and if there's not too much time between the periods the sheep will have enough stores of key vitamins (such as the "fat soluble" vitamins A, D, and E) to carry them through. Many of the other vitamins (Vitamin B's and C) are produced by the microbes in the rumen of the sheep and so are not needed in the supplement.

Table 1: If the nutrient concentrations, per kg of dry matter (DM), in a dry pasture are below the thresholds suggested here, then consider using a supplement rich in that nutrient.

Nutrient	Units	Weaned	
		lambs	Ewes at Joining
Crude Protein	%DM	12.5	7.7
Metabolisable energy	MJ ME/kg DM	10-12.0	8.2
Calcium	g/kg DM	5.25	2.09
Phosphorus	g/kg DM	4	1.71
Magnesium	g/kg DM	1.04	1
Sodium	g/kg DM	0.66	0.64
Chloride	g/kg DM	0.47	0.55
Potassium	g/kg DM	4.5	5.2
Sulphur	g/kg DM	1.8	1.6
Zinc	mg/kg DM	27	27
Copper	mg/kg DM	6.1	3.6
Cobalt	mg/kg DM	0.2	0.1
Selenium	mg/kg DM	0.21	0.03
Iodine	mg/kg DM	0.47	0.45

Source and suggested further reading: Jolly, S., and Cottle, D.J. (2010). Feeding. pp 331-373. In "International Sheep and Wool Handbook". Nottingham University Press. UK.

Having gone through the above steps, even if protein and energy levels are acceptable but minerals are sub-optimal, to convince the sheep to eat the minerals you will probably still need to add some protein and energy to the supplement mix as an attractant. This is where molasses-based liquid and protein meal/molasses/grain-based blocks become useful. Sheep in particular like sweet attractants. So that they don't eat too much of the valuable attractant/mineral combination, a feed intake inhibitor is also ideally added to the mix. Example of inhibitors include excessive amounts of salt, urea, phosphoric or hydrochloric acid, or simply combine the mixture into a compressed block so it is harder for the sheep to physically chew off too much at once.

To conclude, if you want to see the best response to your supplements, be ready for the next dry period. Buy the supplement in early, train your sheep in advance, and get the match right to make the most of your cheapest feed resource – dry pasture. **Use it or lose it.**

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